

## **REMARKS**

Claims in the case are 14-18 and 23 upon entry of this amendment. Claim 14 has been amended, and Claims 19 and 20 have been cancelled without prejudice herein. No claims have been added herein. Claims 1-13, 21 and 22 were cancelled without prejudice in previous amendments.

Claims 14-20 and 23 stand rejected under 35 U.S.C. §103(a) as being unpatentable over United States Patent No. 5,508,241 (**Yeckley**) further in view of United States Patent No. 5,439,856 (**Komatsu**). This rejection is respectfully traversed in light of the amendments herein and the following remarks.

Yeckley discloses a sintered silicon nitride that is prepared using sintering aids, such as MgO and alumina. The sintered silicon of Yeckley may also include silicon in the grain boundary phase. See the abstract, and column 2, lines 3-20 of Yeckley.

Komatsu discloses a high thermal conductive silicon nitride sintered body that contains: 2.0 to 7.5 wt.% of an oxide of a rare earth element; at most 0.3 wt.% of impurity cationic elements, such as Li; at most 2.0 wt.% of alumina and/or alumina nitride; and optionally 0.2 to 3.0 wt.% oxides, carbides, nitrides, silicides and borides of at least one of Ti, Zr, Hf, V, Nb, Ta, Cr, Mo and W. In addition, the sintered body of Komatsu includes: (i) a beta-phase type silicon nitride crystal; and (ii) a grain boundary phase. See the abstract of Komatsu.

Yeckley provides no disclosure, teaching or suggestion as to his sintered silicon nitride containing a beta-phase type silicon nitride crystal. In fact, Yeckley only discloses the use of alpha silicon nitride. See column 2, line 47 and the examples of Yeckley. In addition, Yeckley provides no disclosure, teaching or suggestion with regard to including oxides of rare earth elements in his sintered silicon nitride.

The high thermal conductive silicon nitride sintered body of Komatsu is disclosed as necessarily including a beta-phase type silicon nitride crystal. In addition, the high thermal conductive silicon nitride sintered body of Komatsu is disclosed as necessarily including oxides of rare earth elements.

As such, neither Yeckley nor Komatsu provide the requisite disclosure that would motivate a skilled artisan to combine and/or modify their respective disclosures to arrive at Applicants' presently claimed silicon nitride material. As the

Court of Appeals for the Federal Circuit has stated, there are three possible sources for motivation to combine references in a manner that would render claims obvious. These are: (1) the nature of the problem to be solved; (2) the teaching of the prior art; and (3) the knowledge of persons of ordinary skill in the art. *In re Rouffet*, 47 U.S.P.Q.2d 1453, 1458 (Fed. Cir. 1998). The nature of the problem to be solved and the knowledge of persons of ordinary skill in the art are not present here and have not been relied upon in the rejection. As for the teaching of the prior art, the above discussion has established that neither of the patents relied upon in the rejection provide the requisite teaching, and certainly do not provide the motivation or suggestion to combine that is required by Court decisions.

The rejection appears to impermissibly use Applicants' application as a blueprint for selecting and combining or modifying the cited references to arrive at Applicants' claimed invention, thereby making use of prohibited hindsight in the selection and application of the cited references. The use of hindsight reconstruction of an invention is an inappropriate process by which to determine patentability. *In re Rouffet*, 47 U.S.P.Q.2d 1453, 1457 (Fed. Cir. 1998). Modifying "prior art references without evidence of such a suggestion, teaching or motivation simply takes the inventor's disclosure as a blueprint for piecing together the prior art to defeat patentability -- the essence of hindsight." *In re Dembiczak*, 175 F.3d 994, 999 (Fed. Cir. 1999).

Even if Yeckley and Komatsu were combined, Applicants' presently claimed silicon nitride material would not result from such combination. Yeckley and Komatsu, either alone or in combination, do not disclose, teach or suggest a sintered silicon nitride material that includes a disperse phase that includes SiC and/or TiCN.

In light of the amendments herein and the preceding remarks, Applicants' claims are deemed to be unobvious and patentable over Yeckley in view of Komatsu. Reconsideration and withdrawal of the present rejection is respectfully requested.

Claims 14-19 and 23 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Yeckley further in view of one of United States Patent No. 4,826,791 (**Mehrotra et al**) or United States Patent No. 5,523,268 (**Ukyo et al**).

This rejection is respectfully traversed with regard to the amendments herein and the following remarks.

Yeckley has been discussed previously herein, and discloses a sintered silicon nitride that is prepared using sintering aids, such as MgO and alumina. The sintered silicon of Yeckley may also include silicon in the grain boundary phase.

Mehrotra et al disclose a ceramic composite that includes: a ceramic matrix of alpha prime and beta prime sialon; and silicon carbide particles dispersed in the ceramic matrix. See the abstract, and column 2, lines 19-29 of Mehrotra et al.

Ukyo et al disclose a sintered silicon nitride body that includes: silicon carbide dispersed in silicon nitride; and boron and/or boron compounds. The boron / boron compounds are disclosed by Ukyo et al as being necessarily present for purposes of improving the high temperature properties of their sintered body (e.g., creep resistance). See the abstract, and column 2, lines 35-51 of Ukyo et al.

Yeckley disclose the necessary presence of Mg (and in particular MgO) in the single grain boundary region of his sintered silicon nitride ceramic. Mehrotra et al provide no disclosure or suggestion as to the presence of Mg or MgO in their ceramic composite. As such, neither Yeckley nor Mehrotra et al provide the requisite disclosure that would motivate a skilled artisan to combine or otherwise modify their respective disclosures to arrive at Applicants' presently claimed silicon nitride material.

Yeckley provides no disclosure or suggestion as to the inclusion of boron and/or boron compounds in his sintered silicon nitride ceramic. Ukyo et al disclose and teach the necessary presence of boron and/or boron compounds in their sintered silicon nitride bodies, for purposes of improving the high temperature properties thereof. As such, neither Yeckley nor Ukyo et al provide the requisite disclosure that would motivate a skilled artisan to combine or otherwise modify their respective disclosures to arrive at Applicants' presently claimed silicon nitride material.

The combination of Yeckley and Mehrotra et al, and the combination of Yeckley and Ukyo et al appears to make impermissible use of hindsight reconstruction by picking, choosing and discarding certain elements of their respective disclosures in an attempt to arrive at Applicants' presently claimed silicon nitride material.

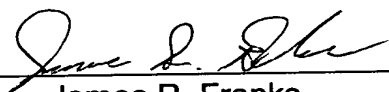
Even if Yeckley were combined with Mehrotra et al or Ukyo et al, Applicants' presently claimed silicon nitride material would not result from such combination. In particular, Yeckley, Mehrotra et al and Ukyo et al, either alone or in combination, do not disclose, teach or suggest a silicon nitride material that includes a reactive additive selected from the group consisting of  $\text{TiO}_2$ ,  $\text{WO}_3$  and  $\text{MoO}_3$ .

It is noted that the present rejection does not include Claim 20 (which depends from Claim 19, which depends from Claim 14). The subject matter of Claims 19 and 20 has been incorporated into Claim 14 by amendment herein.

In light of the amendments herein and the preceding remarks, Applicants' present claims are deemed to be unobvious and patentable over Yeckley in view of one of Mehrotra et al or Ukyo et al. Reconsideration and withdrawal of the present rejection is respectfully requested.

In light of the amendments herein and the preceding remarks, Applicants' presently pending claims are deemed to define an invention that is unanticipated, unobvious and hence, patentable. Reconsideration of the rejections and allowance of all of the presently pending claims is respectfully requested.

Respectfully submitted,

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